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State of Utah
DEPARTMENT OF NATURAL RESOURCES

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November 14, 2014

Serge Roberge
Graymont Western US Inc
3950 South 700 East Suite 301
Salt Lake City, Utah 84107

Subject: Initial Review of Amended Notice of Intention to Commence Large Mining Operations, Graymont Western US Inc., Cricket Mountain Quarry, M/027/0006, Millard County, Utah

Dear Mr. Roberge:

The Division of Oil, Gas and Mining has completed a review of the referenced amendment (received September 8, 2014) to the Cricket Mountain Notice of Intention to Commence Large Mining Operations. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review using **redline and strikeout** text. After the notice is determined technically complete, the Division will ask that you submit two clean copies of the complete and corrected plan. Upon final approval, both copies will be stamped approved, and one will be returned for your records.

The Division has two general comments:

1. The submittal should be formatted to easily incorporate future revisions.
2. The Division may have additional comments based on the responses to this review.

The Division will suspend further review of the Notice of Intention until receiving your response to this review. Please contact Peter Brinton at 801-538-5258 or me at 801-538-5261 if you have questions regarding the review or if you would like to meet and discuss the issues. Thank you for your cooperation.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB: pnb: eb
Attachment: Review
cc: Peter Keefe, SRK (pkeefe@srk.com)
Duane Bays, BLM-FIllmore (UTU-90844), dbays@blm.gov
Jerry Mansfield, SITLA (ML-35572), jmansfield@utah.gov
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UTAH DNR
OIL, GAS & MINING

1st REVIEW OF AMENDED NOTICEOF INTENTION TO COMMENCE LARGE MINING OPERATIONS

Graymont Western US Inc.
Cricket Mountain Quarry
M/027/0006
November 14, 2014

R647-4-104 – Operator Information and Surface and Mineral Ownership

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 1	Provide the correct federal number UTU-90844.	pnb	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	General	In order to provide the detail needed by the Division (such as to clearly show surface water flowpaths, meaningful pit contour lines and elevations, and other features), contour maps (pre-mining, post-mining, and post-backfill) need to be provided for the North Dolomite quarry, overburden pile, and the existing Dolomite pit at a smaller scale (similar to the South Quarry).	pnb	
	Figure 2	The colors representing the Flat Iron and the Dolomite quarries are the same making the features difficult to distinguish. Please change the color of one of the quarries on the figure.	aa	
	Figure 3	Indicate faulting more clearly. There is a USGS geology map and GIS layer with this information that is available. Include a more detailed geologic map. Include structural fabric of the different stratigraphic layers according to USGS standards. Include both a geologic long section and a geologic cross section for each proposed pit. Show current topography and final pit design (also as per R647-4-105.3). Include a brief discussion on alteration or lack of alteration.	pnb lah	
	Figure 4	The HUC drainage code was shown on the map but the boundaries of the HUC 12 drainage area are difficult to interpret. Please clarify the HUC drainage area.	aa	
	Figure 4	Identify the existing quarries, dumps, topsoil piles, and the processing area by name.	pnb	
	Figure 4	Identify all of the roads on this map using the three categories on page 7 (3.4.3). Indicate whether any existing roads will be widened as part of the proposed activities. Clarify whether any other public roads will be impacted, such as the road running north in the South Dolomite quarry area.	pnb	
	Figure 4	Is it anticipated that another road will be constructed (or widened) to shorten the existing haul road from the South Dolomite quarry to the North Dolomite quarry? If so, this should be included in the amendment.	pnb	
	Figures 4 & 7	The pit shapes (specifically the South Dolomite quarry) are not consistent between the two figures.	pnb	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Figure 6	Contour lines appear to be duplicated with no contour interval key or elevations provided. Correct as needed. Cross-sections do not represent the true slope angles for the pits and dump slopes (since the section line is not perpendicular to the slopes). Please draw the section lines to represent the true slope angle. The scale is too big and the contour interval not provided for reclamation slopes, so the slope can't be determined that way. The Division requests that you label maximum slope angles on the cross sections, such as dump slope max 2H:1V for reclamation. Include detailed section on bench and slope angles that support the slope angles in text.	pnb lah	
	Figure 6	The pre-backfill contours should be shown, either on this figure or another.	pnb	
	Figure 7	The first cross section should be labeled D-, not E-.	aa	
	Figure 7	Background contour lines appear to be duplicated with no contour interval key or elevations provided. Correct as needed. Label the elevations of the major contours. The section line for Contour E is not perpendicular to the slope. The east pit highwall appears to be steeper than 1H:1V, but this is difficult to verify.	pnb	
	Figure 8	Please correct the scale bar so that it measures to one inch.	aa	
	Figure 8	Please include post-mining elevation contours of the South Dolomite Quarry pit on this figure.	aa	
	Figure 8	The contour intervals identified in the Explanation do not match the elevations of the contour lines. Correct accordingly, consistent with the reclamation plan. Identify on the map what is meant by "Facility to be Reclaimed" by indicating any regrading, ripping, and revegetation activities, consistent with the reclamation plan.	pnb	
	Omission	A new figure should be created to show the hydrologic design plan. Please show hydrologic features, such as storm water flow directions, diversions, and ultimate discharge locations. Please show the locations of any ephemeral, intermittent or perennial channels in the vicinity of the mine. On the hydrology map, identify any existing and planned drainage control structures, wells (including the operation's supply well, if nearby), and any springs within the project area.	aa pnb	

105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Figure 4 (or a similar map)	Identify the existing electrical transmission lines, pipelines, wells, or other surface or subsurface facilities within the existing or proposed Cricket Mountain quarries. For example, identify the power lines along the road just north of the existing Dolomite pit.	pnb	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Omission	The storm water retention pond planned for the North Dolomite quarry and overburden stockpile area was described as 40' x 40' and was designed to handle a 25-year, 24-hour storm. However, no engineering calculations or cross sections were provided to support the design of the pond. The Division requests a cross section showing the elevations and depth of the proposed retention pond.	aa	

R647-4-106 - Operation Plan

General Operation Comments

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Figure 4	Figure 4 indicates that the North Dolomite quarry and the South Dolomite quarry appear to be in separate drainage basins. The drainage from the north side of the North Dolomite quarry will flow toward the storm water retention pond, but it is not clear where storm water generated south of the North Dolomite quarry will flow or how it will be managed. Please provide a more detailed stormwater management plan for this area within the Broadmouth Canyon drainage basin.	aa	
	Figure 4	The South Dolomite quarry appears to be intersecting a rather large ephemeral wash on its northern border. Hydrologic controls should be developed in this area to allow for the natural drainage from the upgradient areas of this wash to flow through without affecting quarry operations.	aa	
	Section 3.4.12	Storm water originating from upland areas from the west side of the North Dolomite and South Dolomite quarries should be rerouted around the quarries and discharged to undisturbed area drainages rather than be allowed to flow into the quarry pit. The plan discusses that storm water will be intercepted upslope of the quarries and diverted, but it should also be illustrated on a hydrologic map. Please show the upland drainage flow plan on a hydrologic map.	aa	
	Section 3.4.12	Similar to the comment above, storm water from upland areas to the north and west of the overburden stockpile will need to be routed around the stockpile and discharged to an undisturbed area so that storm water will not be able to run on to the stockpile causing erosion. Please describe a plan for managing storm water generated from the upland area of the overburden stockpile and show the drainage plan on a hydrologic map.	aa	
	Section 3.4.12	The text discusses a haul road east of the South Dolomite Quarry. No haul road is proposed east of this quarry. The plan and the figures show Little Sage Valley Road which is a public access road, not a haul road. It is unclear if storm water from this quarry will be directed to this access road or the haul road to the northwest of the quarry.	aa	

106.2 - Type of operations - mining method, onsite processing, deleterious or acid-forming materials

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 6, Omission	Provide the estimated annual tonnages of ore and waste materials to be mined.	pnb	
	Page 7, Section 3.4.2	Provide general information here about the location and components of the already-permitted crushing and sizing facility. You may refer to the other already-approved part(s) of the large mine Notice of Intent which addresses crushing.	pnb	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 8, 3.4.5	Acreages and hole locations of exploration holes should be provided to the Division as an amendment to the Notice, and approval of the amendment and an appropriate reclamation surety granted, before the Division will authorize drilling.	pnb	
	Page 8, 3.4.5	Replace the reference to the NDEP-BMRR with a reference to the Utah Division of Oil, Gas, & Mining (UDOGM).	pnb	
	Omission	Indicate whether or not there will be any deleterious or acid-forming materials present or left on site as a result of mining or processing.	pnb	

106.3 - Estimated acreages disturbed, reclaimed, annually/sequentially

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 4, Omission	Identify Table 3-1 as applying only to the dolomite areas.	pnb	
	Page 4, Omission	Identify annual or sequential acres to be disturbed and/or reclaimed.	pnb	

106.4 - Nature of materials mined or processed (including waste materials), and estimated annual tonnages

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 5, 3.2	Identify more specifically the nature of waste rock or overburden materials, and whether any of the material is altered. If present, discuss the nature of any deleterious or acid forming materials in some detail. Otherwise, state their absence. Some detail has been provided already in 6.4.1.	pnb	

106.5 - Existing soil types, location, amount

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Appendix A of Appendix B, pages 3	The soils report in Appendix A of Appendix B references pedon descriptions in Appendix A, probable depths of optimal topsoil and subsoil salvage in Appendix B, and photographs in Appendix C. None of these appendixes could be located. The pagination in this appendix needs to be corrected. There are two pages 3.	pbb	
	Figure 2, Appendix A of Appendix B	The text in the first complete paragraph of the second page 3 says Figure 2 shows the distribution of the map units together with the dominant composition of each unit along with general information related to the topographic setting, inclusions, and recommended salvage depths. Figure 2 does not contain all of this information. It shows locations of soil plots and a code name for each. It does not show topographic setting (other than what might be inferred from the base aerial photo map), inclusions, or recommended salvage depths. Please provide this additional information.	pbb	
		The soils report contains very limited information about the chemistry of the soils. It indicates the pH is 8.5 throughout the profiles of both soil series and that these soils are carbonatic with higher levels of carbonates in the subsoil. At what depth do carbonates become limiting? Please provide additional information about the chemistry of these soils, particularly with regard to salts, such as electrical conductivity values and sodium adsorption ratios. Should there be limitations on salvage depths because of salts?	pbb	

106.6 - Plan for protecting & re-depositing soils

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Appendix B, Section 5.1	Appendix A in Appendix B discusses salvage of 12 inches of subsoil from the San Pete Series, but this is not in the plan. The plan shows a total of 122,000 cubic yards of soil from the San Pete Series (average of six inches) and nothing from the Amtoft Series being salvaged. This is an average of 2.3 inches of soil over the entire area which is likely not adequate for establishing vegetation. Assuming the subsoils are suitable for salvage and that there is not a limiting factor, such as salts, and if 12 inches of subsoil were salvaged, there would be a total of 4.6 inches of subsoil and 2.3 inches of topsoil for a total of 6.9 inches. This is much more likely to lead to revegetation success. There may be areas where much more soil, possibly several feet, is available. Please modify the soil salvage plan so that: 1. Enough soil is saved for revegetation success. If there is not enough naturally occurring soil, please show what other measures will be taken. 2. There is assurance that the soils being saved are suitable for plant growth and do not have chemical or physical limitations.	pbb	
	Section 5.1	This section says the soil stockpile will be seeded. Please provide a seed mix.	pbb	

106.8 - Depth to groundwater, extent of overburden, geologic setting

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 14, 4.4	If it exists and is available, please provide information on the water level in what appears to have been a water well with an unapproved water right of 71-3445.	pnb	

106.10 - Amounts of material extracted or moved (including ore, waste, topsoil, etc.)

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Omission	Provide the amount of crushed ore and the waste piles (and/or stockpiled fines) that are produced from the material that will be mined from these new quarries, and ensure that the space and reclamation surety needed for the mined material are included in the other already-approved documents from this Notice.	pnb	

R647-4-108 - Hole Plugging Requirements

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 8 Para 6	Add text to acknowledge R647-4-108 hole plugging requirements, specifically hole plugging regarding dry/wet holes and maximum time allowed before plugging.	lah	

R647-4-109 - Impact Assessment

109.1 - Projected impacts to surface & groundwater systems

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 18, 5.4	Indicate specifically whether surface and groundwater resources are projected to be impacted.	pnb	

109.2 - Potential impacts to threatened & endangered wildlife/habitat

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 17, 5.2 & 5.3	Indicate specifically whether any threatened or endangered species will be potentially impacted.	pnb	

109.4 - Projected impacts on slope stability, erosion control, air quality, public health and safety

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 15, 4.9	The Division will likely require berms to be placed above pit walls, per R647-4-107.1.15. If berms are planned, please discuss briefly.	pnb	
	Page 14 4.6 and page 18 5.6	As per R647-4-110.7, more information is need on pit slope angles. Slopes over 1H:1V would require a variance and supporting documentation. Sacrison Engineering 2010, might provide the supporting documentation needed for a variance, if the slopes will be steeper than 1H:1V. The plan says the slopes are "…predicted to be stable." Please commit to an adequate Factor of Safety that will be maintained. The Division may later have additional comments based on the Scarison report and slope angles.	lah	

R647-4-110 - Reclamation Plan

110.2 - Reclamation of roads, highwalls, slopes, impoundments, drainages, pits, piles, shafts, adits, etc

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 21, 6.4.1, Page 23, 6.9	The Division will require construction of berms above highwalls.	pnb	
	Page 21, 6.4.1	The Division strongly recommends contour furrowing or ripping along the contour of all backfill or waste dump slopes, as a means to reduce erosion and to facilitate revegetation. See also page 9 (3.4.12) and page 22 (6.4.5).	pnb	

110.3 - Facilities to be left for post mining use (buildings, utilities, roads, pads, ponds, pits, equipment, etc.)

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 21, 6.4.5	Please explain the rationale as to why the storm water retention pond will be left after reclamation. Any impounding structures to remain must be self-draining and mechanically stable unless shown to have sound hyrologic design and to be beneficial to the post-mining land use, per R647-4-111.9. You would need to include the pond capacity and dimensions as well.	aa pnb	

110.5 - Revegetation planting program

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 20, 6.3	Revegetation activities will be needed for the non-backfilled quarry floors and haul roads in order to meet the Division's revegetation standards. Haul roads and pit bottoms should be ripped then seeded with beneficial species. Benches should also be seeded.	pnb	
	Pages 21, 6.4.1, 6.4.3, Page 22	Specifically identify the depth(s) of soil replacement. See comments above concerning Appendix B and Section 5.1. If inadequate soil is available, the plan should show what alternative revegetation methods will be used, such as the use of fines or soil from other quarries.	pnb & pbb	
	Page 21, 6.4.1, 6.4.2, 6.6.2	Seeding will need to be performed on all regraded and scarified areas. Slopes of 2.5H:1V are considered safe for equipment to work on with proper safety precautions and under the large majority of situations.	pnb	
	Page 21, 6.4.3	Seeding will also be required on scarified/ripped roads.	pnb	
	Page 22, 6.6.1	Identify the seed mix to be used, including the total seeding rate. Variances from the approved seed mix will need to be approved in advance by the Division (and probably by the BLM as well).	pnb & pbb	

110.6 – Statement that the operator will conduct reclamation as required by these rules.

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Page 20	Provide a statement that the operator will conduct reclamation as required by the rules in R647-4.	pnb	

R647-4-113 – Surety

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
	Omission	Please provide separate reclamation cost calculations and totals for BLM disturbances, SITLA disturbances, and private land disturbances. The Division does not require these calculations, but the BLM in particular needs to be able to demonstrate that there is adequate surety posted for its lands.	pnb	
		Please include a narrative in the reclamation plan how the overburden piles will be reclaimed. At a minimum the narrative should match each operation in the surety.	whw	
		Please use the full Mean reference numbers. In the equipment rental section there are several pieces of equipment that have the same four digits for the last number.	whw	
		The water truck Means number, 6900, refers to a trailer; the number for a water truck is 01 54 40 333 6950 and is a 6,000-gallon water truck, not an 8,000-gallon water truck.	whw	
		Please use the Division's forms for showing the equipment costs, production rates and costs.	whw	
		The Division adds 10% to equipment for overhead and profit (see Division's work sheets)	whw	
		The Division uses Means labor cost total with overhead and profit, which include FICA, workers compensation, and other government mandated costs.	whw	
		The Division was not able to duplicate the equipment cost from Means. See example of the Division's Means worksheet.	whw	
		Please state what equipment will be used for seeding.	whw	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
		Seed costs are highly variable depending on the year. The Division usually uses $500 per acre for reseeding if the seeding is done during the earthwork phase and $1,000 per acre is the seeding is done separately.	whw	